Abstract

Road safety remains a critical issue worldwide, particularly in urban areas where traffic congestion, rapid infrastructure development, and environmental factors contribute to road hazards such as potholes, malfunctioning traffic signals, and poorly designed intersections. To address these challenges, a Community Reporting System for Road Hazards has been developed, empowering citizens to actively participate in improving road safety. This web-based platform offers a user-friendly interface for the general public, allowing them to report hazards in real-time through their smartphones or computers. Users can fill out a simple form to provide details such as the type of hazard (e.g., potholes, broken traffic signals), its exact location, a description of the issue, and even upload images for better clarity. Once submitted, the data is stored in a centralized database, which is accessible to both the public and relevant authorities.

For administrators, the system provides a comprehensive dashboard designed to streamline the management of reported hazards. The dashboard allows authorities to review submitted reports, update their status (e.g., "Under Review," "Resolved"), and prioritize actions based on the severity of the issue. Administrators can also generate analytical reports to identify recurring problems and allocate resources more effectively. The public, on the other hand, can track the status of their reported hazards through a public-facing interface, ensuring transparency and fostering trust in the system. Notifications are sent to users whenever there is an update on their reports, keeping them informed throughout the resolution process.

In Coimbatore, specific groundwork has identified critical road safety concerns. For instance, the intersection at **Kondaiyampalayam Road and Saravanampatti Road** lacks a roundabout, leading to chaotic traffic flow and potential collisions.

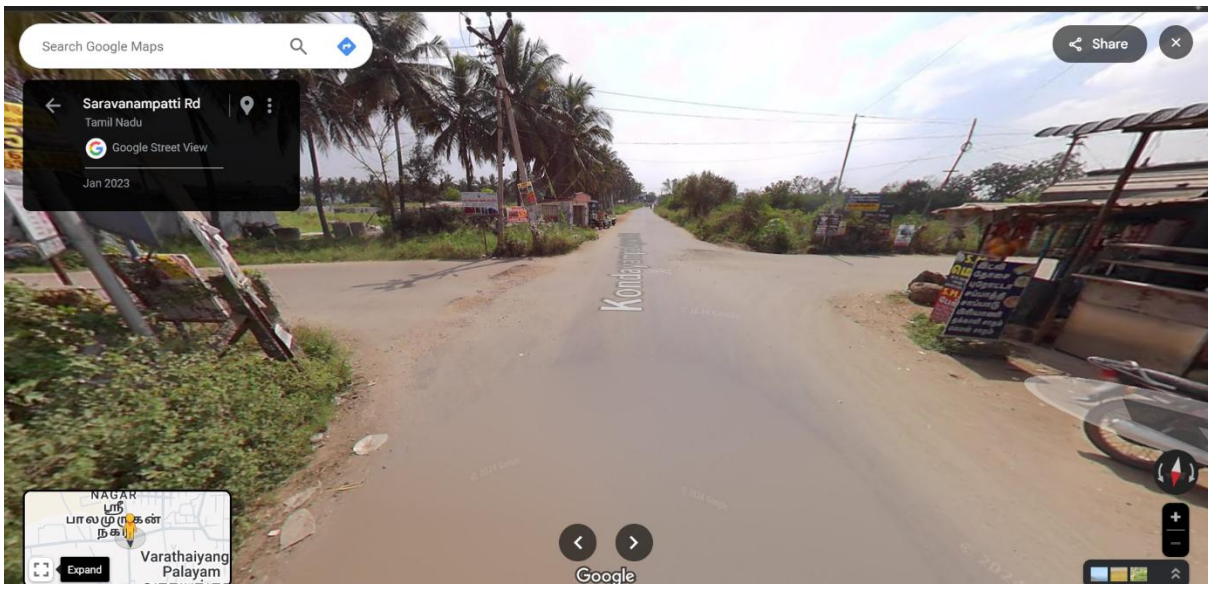

Image: Kondaiyampalayam Intersection.

Similarly, near **Samashti International School**, blind spots and high pedestrian traffic have resulted in numerous accidents, necessitating the installation of speed bumps and warning signs.

Image: Samashti School Intersection.

In **Thudiyalur**, a non-functional traffic signal near the bus stand has caused traffic congestion and increased accident risks.

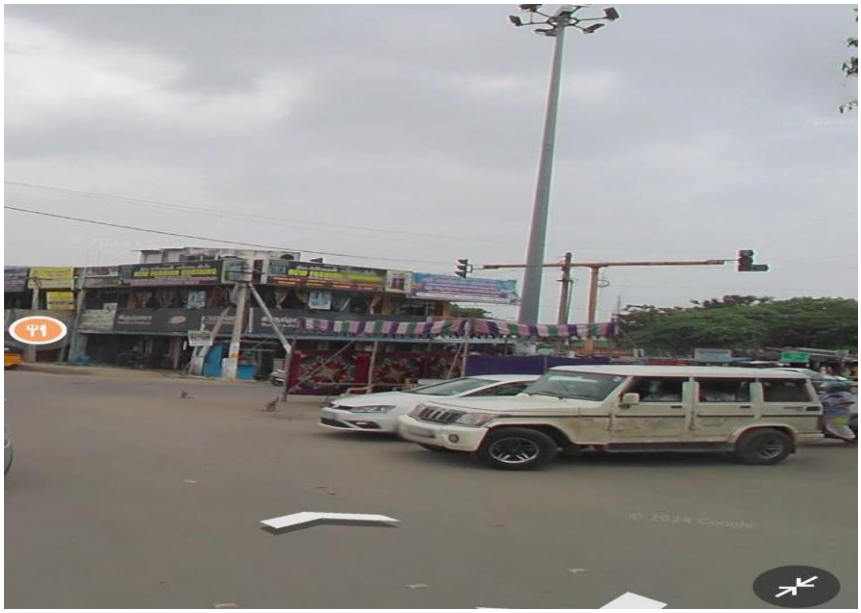

Image: Thudiyalur Bus Stand Intersection.

Additionally, potholes near the **Thudiyalur Mosque** pose dangers to vehicles and pedestrians alike.

Image: Thudiyalur Mosque Road.

These issues highlight the urgent need for community-driven reporting and timely intervention.

The proposed system leverages Django for backend operations, HTML/CSS/JavaScript for frontend development, and Leaflet.js for interactive map integration. A MongoDB database ensures scalable and reliable storage of hazard reports, while Django Signals facilitate real-time notifications for users. By combining community engagement with advanced technology, this system aims to enhance road safety, reduce accidents, and foster a collaborative approach to urban infrastructure management.

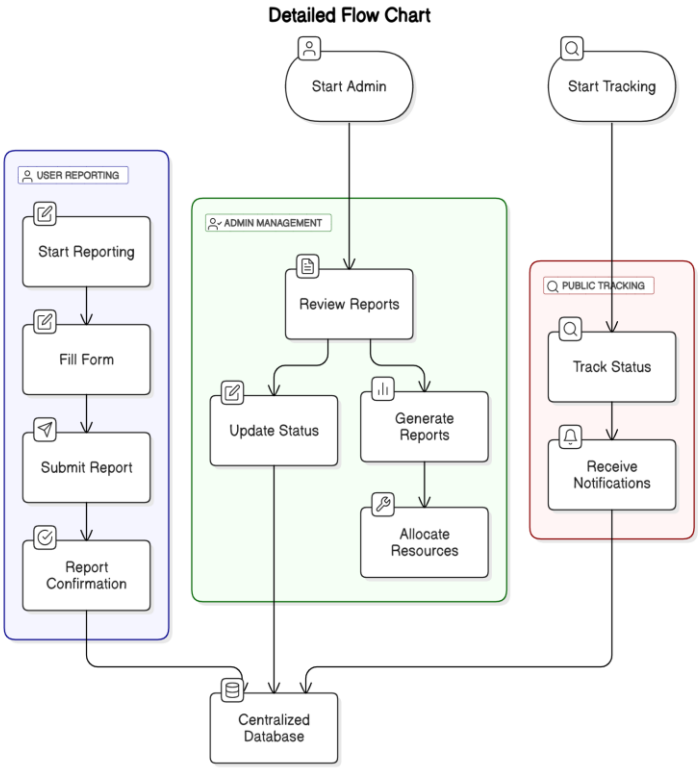

Fig 1 A Block Diagram of Community Reporting System for Road Hazards